Claims:

1.   A method of handling ATM traffic comprising packets of AAL5 type composed of ATM cells, at a network node at VP-layer, the method comprising:

-        monitoring each of said cells incoming the node to obtain information at least on its VC-layer and VP-layer parameters,

-        processing information on said parameters,

-        registering the processed information concerning each of said cells in a statistical database to obtain statistical data with respect to at least VC-layer and VP-layer parameters of the packets being handled at the node.

2.   The method according to Claim 1, wherein each of said packets belongs to a particular VCC (Virtual Channel Connection) and a particular VPC (Virtual Path Connection), and wherein each said packet comprises a plurality of ATM cells, all cells of the same packet carrying the same value of VC-index (VCI) and the same value of VP-index (VPI), the method comprises:

    providing the statistical database,

    monitoring each of said cells incoming the node to obtain information at least on its VC-layer and VP-layer parameters by determining VPI and VCI values of the cell;

    processing said information by processing the determined at least VCI and VPI values of each of the monitored cells, and

    registering the processed information by inserting the processing result per each of the monitored cells in the statistical database, thereby enabling awareness of the network node about VCCs at the VP layer and frequency of their appearance in the ATM traffic being handled.

3. . The method of handling ATM traffic at a network node, according to Claim 1 or 2, wherein the node has one or more ATM Interfaces, the method comprises providing one or more said statistical databases for respectively serving said one or more ATM Interfaces.

4.   The method of handling ATM traffic at a network node, according to Claim 1 or 2, wherein the node has multiple ATM Interfaces, the method comprises providing a common said statistical database for serving at least a number of the multiple ATM Interfaces.

5.   The method according to claim 4, comprising an additional step of indicating a particular ATM Interface, for each ATM cell received there-through, by an additional parameter being a unique ATM Interface index (IfIndex), the method also comprising monitoring each of the incoming cells from the point of that additional parameter, processing the additional parameter together with said other parameters and registering the processing result in the common statistical database.

6.   The method according to any one of the preceding claims, further comprising monitoring each of the incoming ATM cells from the point of "end of packet" indication and, based on the presence or absence of said indication, complementing the statistical database with a status of the VCC under monitoring to which the cell being registered belongs.

7.   The method according to any one of the preceding claims, wherein the step of providing the statistical database is performed by building a table arranged for N entries assigned to N different VCCs, wherein each entry registers a number of fields assigned for at least the following purposes: indicating a VPI value, indicating a VCI value, a counter of "own cells", a counter of "other cells", AAL5 packet status.

8.   The method according to claim 7, wherein each entry registers an additional field for indicating an index of the ATM Interface (IfIndex).

9.   The method according to any one of Claims 1 to 7, wherein the step of processing the VCI and VPI parameters is performed by applying an arbitrary function $f(VPI, VCI) = n$ ($n=1..N$) to values of VPI and VCI of each of the incoming ATM cells, wherein the value n is a natural number between 1 and N and represents the entry number in the statistical database to which the incoming ATM cell is mapped.

10.   The method according to Claim 8, wherein the step of processing the IfIndex, VCI and VPI parameters is performed by applying an arbitrary function $f(IfIndex, VPI, VCI) = n$ ($n=1..N$) to values of IfIndex, VPI and VCI of each of the incoming ATM cells, wherein the value n is a natural number between 1 and N and represents the entry number in the statistical database to which the incoming ATM cell is mapped.

11.   The method according to Claim 9 or 10, wherein the arbitrary function "f" is selected in such a manner that different combinations of the respective parameters give the same result "n", so that VCCs with multiple combinations of the parameters can be mapped to the same entry in the database.

12.   The method according to Claim 7, wherein the fields "own cells" and "different cells" serve for distinguishing different VCCs which can be mapped to the same entry.

13.   The method according to Claim 12, comprising replacing a particular entry by reassigning it to another VCC if in said entry a reading of the "own cells" counter is significantly smaller than a reading of the "other cells" counter.

14.   The method according to Claim 6, further comprising indicating the status in the statistical database as follows:

Begin Of Packet – where the monitored VCC starts transferring a new packet, in case the previous ATM cell belonging to the VCC under monitoring carried an "End Of Packet" indication;

In Packet – where the monitored VCC is in the middle of the AAL5 packet transmission.

15.   The method according to Claim 14, further comprising indicating additional status options for informing whether the current VCC is already under a packet discard process; said status options being either PD (partial discard) or FD (full discard).

16.   A method of AAL5 packets discard at a VP-layer, with respect to said packets handled at a network node according to the method according to any one of Claims 1 to 15, the packet discard mechanism comprises:

- detecting a new congestion event in the network while monitoring a cell belonging to a particular VCC,

- analyzing information in the statistic database, based on the analysis deciding whether said particular VCC is suitable for discarding,

- if yes, discarding cells of the VCC according to a selected discard policy,

- if not, performing the mechanism with respect to a new incoming cell.

17.   The method according to Claim 16, wherein the step of analyzing information in the statistic database generally comprises checking whether the particular VCC is registered as one of "N" entries of the table and if the VCC is not registered in the database, making a decision not to discard the cell.

18.   The method according to Claim 16, wherein the analyzing step comprises checking whether the particular VCC is registered as one of "N" entries of the table, and if the VCC is registered in the database, making a decision to discard the cell.

19.   The method according to Claim 18, further comprising checking status of the packet and depending on the status "in packet " or "begin of packet", applying the following discard decisions:

        -       when the status is "begin of packet", performing a Full
                Discard policy;

        -       when the status is "in packet", performing a Partial Discard policy.

20.   The method according to Claim 16, wherein the analysis step further includes a check whether cells of the particular VCC are already under discard, and if yes, repeating the method with respect to the VCC of the next incoming cell in case the congestion event persists.

21.   The method according to Claim 16, further comprising a step of forecasting an expected congestion event, and if said expected event is forecast, a discard decision is made for the incoming VCC which is considered, and performed on the basis of status "begin of packet" and by applying a Full Discard policy.

22.   A software product comprising software implementable instructions and/or data for carrying out the methods according to any one of the preceding claims.

23.   A carrier medium comprising the software product according to Claim 22.

5   24.   A network node adapted to and capable of performing the method according to any one of Claim 1 to 21.

25.   The network node according to Claim 24, being a Digital Subscriber Line Access Multiplexer (DSLAM).

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